



## CALFED BAY-DELTA PROGRAM

*The CALFED Bay-Delta Program is an unprecedented cooperative effort among state and federal agencies and the public to ensure a healthy ecosystem, reliable water supplies, good water quality, and stable levees in California's Bay-Delta.*

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# Alternative 2

## Common Program

- Ecosystem Restoration
- Water Quality
- Levee System Integrity
- Water Use Efficiency

## Conveyance

Existing system of through-Delta channels, with significant capacity improvements

## Storage

0-500 TAF Conjunctive Use/  
Groundwater Banking  
0-1.5 MAF Upstream Surface  
Storage  
0-600 TAF In-Delta Surface  
Storage  
0-1.5 MAF South-of-Delta  
Surface Storage

**Conjunctive Use** *Integrated management of surface water and groundwater supplies to meet overall water supply and resource management objectives.*

**Upstream Storage** *Any offstream storage upstream of the Delta supplied by the Sacramento or San Joaquin Rivers or their tributaries.*

**Groundwater Banking** *Using available storage capacity within groundwater basins to store surface water that is recharged during periods when it is available (e.g. during peak flood flows).*

**South-of-Delta Storage** *Any offstream storage supplied with water exported south from the Delta.*

**TAF/MAF** *Abbreviation for thousand acre feet and million acre feet. An acre foot is the volume of water that would cover one acre to a depth of one foot, or 325,851 gallons of water. On average, could supply 1-2 households with water for a year.*

## Overview

Similar to the other CALFED Bay-Delta Program alternatives, Alternative 2 combines the common programs, a water storage element, and a system for moving, or conveying, water through the Delta. The common programs are essentially the same in all three alternatives. In Alternative 2, water conveyance through the Delta is substantially improved through significant changes to the existing system of channels (modified through-Delta conveyance system).

The level of conveyance improvements in this alternative could vary from dredging and widening of selected channels to major reconfiguration of Delta channels and flow patterns. Early in Phase II staff will study a wide variety of possible through-Delta conveyance improvements.

In addition to making water flow more efficiently through the Delta, channel improvements could provide opportunities for new fish and wildlife habitats. For example, where levees are set back to increase water conveyance capacity, both shaded riverine and shallow water habitats could be created.

A new diversion, with or without fish screens, could be added on the Sacramento River at a location between Georgiana Slough and Hood. A new diversion could help increase flow capacity and decrease channel velocities. Adding a new Sacramento River diversion would require re-evaluation of existing standards for allowable export ratios and salinity to protect the Bay-Delta ecosystem.

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**Fish Screens** *Physical structures placed at water diversion facilities to keep fish from getting pulled into the facility and dying there.*

**Real-Time Monitoring** *Continuous observation in multiple locations of biological conditions on site in order to adjust water management operations to protect fish species and allow optimal operation of the water supply system.*

**Water Transfers** *Voluntary water transactions conducted under state law and in keeping with federal regulations.*

## Some Potential Benefits

- Preserves the common Delta pool (common source of fresh water for all users, with all users sharing the benefits and responsibilities for the in-Delta system).
- Improves fish habitat and may reduce fish losses at diversion.
- Can improve export water quality, especially at certain times of the year. Can improve in-Delta water quality.
- Improves operational flexibility in meeting export needs and environmental goals.

## Some Potential Concerns

- Construction of channel improvements could temporarily disrupt habitats. Setback levees could disrupt both terrestrial habitats and agriculture over the long-term.
- A Sacramento River diversion could expose more migrating fish to screening impacts. The diversion would be in critical native fish habitat.
- Total Delta outflow might decrease, though outflow would increase during the periods most important to fish.

In Phase II, technical studies will help determine what type and volume of storage would best complement this alternative. For each increment of conveyance improvement, staff will study several storage sizes and locations. Additional upstream surface storage could be located north, east, or south of the Delta. Sample ranges of storage to be studied in Alternative 2 are conjunctive use/groundwater banking (0-500 TAF), upstream surface storage (0-1.5 MAF), in-Delta storage (0-600 TAF), and south-of-Delta surface storage (0-1.5 MAF).

## Operations

Under Alternative 2, the permitted capacity of south Delta pumps could be increased up to their physical capacity (15,000 cfs). During periods when fish are less vulnerable to the effects of diversions, roughly during late fall and early winter, the pumps could operate at high capacity so that when fish are more vulnerable, approximately during March through June, pumping could be minimized. Real-time monitoring of fish populations, though early in its development stage and requiring additional validation and calibration, could be expanded to help guide the pumping operations. Alternative 2 also includes enlarging channel capacities in the north and south Delta to make water movement across the Delta more efficient.

Storage in Alternative 2 would greatly enhance operational flexibility. During periods of heavy pumping, water could be stored south of the Delta for release during periods when pumping is curtailed to protect fish. Similarly, during average and wetter years, some flood flow (flow above the requirements for ecosystem protection) could be stored upstream of the Delta and released later to meet downstream needs. Part of this flood flow could also be stored south of the Delta to offset reductions in spring and summer pumping.

During dry and critical years, conjunctive use of surface water and groundwater and groundwater banking programs could help offset Delta exports, thereby increasing spring outflow.

## Adjustments to the Common Programs

For each alternative, slight adjustments will be made to complement the alternative's storage and conveyance components. For example, in Alternative 2 continued through-Delta conveyance might only moderately improve export water quality. As a result, special attention might be given to actions that address export water quality. Similarly, the water use efficiency program could emphasize water transfers more so than in Alternative 1, since the improved through-Delta conveyance of Alternative 2 would facilitate transfers.